New Course Request

Undergraduate credit [ ]
Graduate credit [✓]
Professional credit [ ]

1. School/Division: Medicine/Public Health
2. Academic Subject Code: PBHL
3. Course Number: A621 (must be cleared with University Enrollment Services)
4. Instructor: McSwane
5. Course Title: Solid and Hazardous Waste Management
   Recommended Abbreviation (Optional): Solid & Hazardous Waste Mgmt
   (Limited to 32 Characters including spaces)
6. First time this course is to be offered (Semester/Year): Fall 2010
7. Credit Hours: Fixed at 3 or Variable from 0 to 0
8. Is this course to be graded S-F (only)? Yes [ ] No [✓]
9. Is variable title approval being requested? Yes [ ] No [✓]
10. Course description (not to exceed 50 words) for Bulletin publication: The purpose of this course is to provide students with basic information and understanding necessary to perform beginning level work in the environment industry or governmental agencies which are involved in the management of solid waste and/or hazardous waste.
11. Lecture Contact Hours: Fixed at 3 or Variable from 0 to 0
12. Non-Lecture Contact Hours: Fixed at 3 or Variable from 0 to 0
13. Estimated enrollment: 30 of which 100 percent are expected to be graduate students.
14. Frequency of scheduling: Fall/Spring/Summer
15. Will this course be required for majors? No
17. Are the necessary reading materials currently available in the appropriate library? Yes
18. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.
19. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant.

A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by: Carole Kacies Date 6/11/10
Department Chairman/Division Director

Approved by: Allen W. Warrin Date 6/8/2010
Dean

Date
Dean of Graduate School (when required)

Date
Chancellor/Vice-President

Date
University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.
Solid and Hazardous Waste Management provides an overview and foundation in the science and management of solid and hazardous waste, with a focus on health impacts and strategies to reduce these impacts. Our focus is on the scientific and technical aspects of solid and hazardous waste management through the study of the various aspects of integrated solid waste management, including waste characterization, generation rates, underlying regulations, and waste handling methods including reuse, recycling, incineration/waste-to-energy, and landfill methods. Students will be introduced to concepts behind pollution prevention and waste minimization/waste reduction. The course will also cover hazardous waste management, including waste characterizations, underlying regulations, transportation, and treatment, storage, and disposal methods. The course will provide an in-depth look at the design criteria for solid and hazardous waste facilities, including waste transfer stations, recycling centers, material recovery facilities, incinerators/waste-to-energy facilities, and landfills. Finally, the course will examine remediation issues faced caused by improper disposal of solid and hazardous wastes – past and present.

1. Describe the direct and indirect human and ecological effects of major environmental and occupational agents.
2. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues.

3. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety.

4. Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.

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**COURSE LEARNING OUTCOMES**

Upon successful completion of this course, a student should be able to demonstrate mastery of the following learning outcomes:

- Identify and characterize traditional and nontraditional solid and hazardous wastes.

- Identify, compare and contrast the health and welfare effects of traditional and nontraditional solid and hazardous wastes.

- Describe the steps that can be taken to reduce the amount of solid and hazardous waste materials generated in America.

- Summarize and describe the techniques that are commonly used to safely manage solid and hazardous wastes generated in America.

- Describe the design characteristics of solid waste disposal facilities and facilities that store, treat and/or dispose of hazardous wastes.

- Identify and explain the major provisions of the environmental laws and regulations that have been enacted to protect public health and the environment against the adverse effects caused by improper management of solid and hazardous wastes.

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**INSTRUCTOR'S CLASSROOM POLICIES**

Attendance at classes is expected unless prevented by work, illness, or family emergencies. If you know in advance that you will be unable to attend a class, you should contact the instructor to make him aware of your situation. If you are unable to attend nearly all scheduled class meetings, you should withdraw from the course.

In general late work is not accepted, unless there is a medical or personal emergency which can be documented. I recognize that extenuating circumstances may exist, and I will consider such requests on a case by case basis, but all students will be treated equitably. If you must travel out of town, your work must be submitted prior to leaving.
REQUIRED COURSE MATERIALS

U.S. Environmental Protection Agency, RCRA Orientation Manual available at the following web site: http://www.epa.gov/osw/inforesources/pubs/orientat/


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ASSESSMENT AND GRADING

The final grade will be based on the following:

1. Examinations (60%) – There will be three examinations administered during the semester. Each examination will contain questions dealing with the information presented in class lectures, PowerPoint slides and assigned reading materials.

2. Homework Assignments (40%) – The homework assignments will help the student measure his or her understanding of lecture materials and reading assignments related to solid and hazardous waste management. A minimum of 1 week will be allowed to complete homework.
**FINAL GRADE SCALE**

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<thead>
<tr>
<th>Grade</th>
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<tbody>
<tr>
<td>A+</td>
<td>98 - 100</td>
<td>C+</td>
<td>78 - 79</td>
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<tr>
<td>A</td>
<td>93 - 97</td>
<td>C</td>
<td>73 - 77</td>
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<tr>
<td>A-</td>
<td>90 - 92</td>
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<tr>
<td>B+</td>
<td>88 - 89</td>
<td>D+</td>
<td>68 - 69</td>
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<td>83 - 87</td>
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<td>63 - 67</td>
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<tr>
<td>B-</td>
<td>80 - 82</td>
<td>D-</td>
<td>60 - 62</td>
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<td>F</td>
<td>Less than 60</td>
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**STUDENTS WITH DISABILITIES**

Students needing accommodations because of disability will need to register with Adaptive Educational Services (AES) and complete the appropriate forms issued by AES before accommodations will be given. The AES office is located in UC137, and you can reach the office staff by calling 274-3241.

**STUDENT COURSE EVALUATION**

The Department of Public Health evaluates all courses. Student course evaluations will be conducted in a manner that maintains the integrity of the process and the anonymity of respondents.

**ACADEMIC INTEGRITY**

Academic and personal misconduct by students in this class are defined and dealt with according to the procedures in the Student Misconduct section of the IUPUI Code of Student Rights, http://live.iupui.edu/dos/code/htm.

**COURSE SCHEDULE**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading Assignment</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Introduction to RCRA: Hazardous Waste</td>
<td>Executive Summary - ES-1 to ES-4; Section I, I-1 to I-9; Section III - Chapter 11, pages III-137 to III-143; Section VI - Overview and Chapter 2, pages VI-</td>
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</tbody>
</table>
Week 2  Definition of Hazardous Waste  
Waste Determination Assignment  

Week 3  Management Requirements for Generators  

Week 4  Management Requirements for Transporters  
and Treatment, Storage and Disposal (TSD)  
Facilities  
Exam I  

Week 5  General Requirements for TSD Facilities  

Week 6  Permitting Process; Specific Standards for  
TSD Facilities  

Week 7  Permitting Standards for TSD Facilities  

Date  Topic  Assignment  
Week 8  Hazardous Waste Facility Presentation  
Hazardous Waste Audit Project Due  

Week 9  Exam II  

Week 10  What is Solid Waste? - An Introduction  
National “Lay of the Land” for  
Solid Waste  

Week 11  Sources, Types, Composition and  

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Supplemental Text</th>
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<tbody>
<tr>
<td>12</td>
<td>Characteristics of Municipal Solid Wastes</td>
<td>Ch. 3, 4 and 6</td>
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<tr>
<td>13</td>
<td>Transfer Stations and Sanitary Landfills</td>
<td>Supplemental Text: Ch. 7, 8, 9, 10, 11, 16, and 17</td>
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<td>14</td>
<td>Composting, Incineration, and Waste-to-Energy Facilities</td>
<td>Supplemental Text: Ch. 13 and 14</td>
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<td>15</td>
<td>Waste Reduction, Waste Minimization, and Pollution Prevention</td>
<td>Supplemental Text: Ch. 12, 15</td>
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<tr>
<td></td>
<td>Reduce, Reuse, and Recycle</td>
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<td>Recyclable Materials/Recyclables Collection Methods</td>
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<td>Recycling Centers and Material Recovery Facilities</td>
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<td>Exam 4</td>
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